

REMARKS/ARGUMENTS

Claims 1-19 and new Claim 20 are active in the case. Claims 9, 11 and 12 stand withdrawn from consideration. Reconsideration is respectfully requested.

The present invention relates to an electronic device that employs an epoxy resin composition as a protective material.

Claim Amendments

The language of the claims has been amended in order to improve upon the structure of the language and the grammar of the claims. None of the amendments are believed to have introduced new matter into the case. Entry of the amendments into the record is respectfully requested.

New Claim 20 has been presented as the same is directed to the elected embodiments of the invention. Entry of the new claim into the record is respectfully requested.

Claim Rejection, 35 USC 112, Second Paragraph

Claims 4, 7 and 18 have been amended in order to remove the language that has been objected to. Accordingly, withdrawal of the non-reference ground of rejection of the claims is respectfully requested.

Invention

The discovery of the present invention is an electronic device which is comprised of a battery that contains a nonaqueous solvent and that is disposed on a substrate and an electronic circuit disposed adjacent to the battery on the substrate. The electronic circuit is isolated from the battery by an epoxy resin composition that is comprised of an epoxy resin, a latent catalyst consisting of a phenol compound and an organic metal compound, a butyral

resin, and an inorganic filler. The provision of the several component epoxy resin is such that it prevents deterioration of the electronic device by electrolyte leakage from the battery.

Claim Rejection, 35 USC 103

Claims 1-8, 10 and 13-19 stand rejected based on 35 USC 103(a) as obvious over Clayton, U. S. Patent 6,049,975; Goldner et al, U.S. Patent 6,982,132 and JP 2001/2757 in view of Murai et al, U.S. Patent 6,437,090 and JP Nos. 58/187425 and 62/74919. This ground of rejection is respectfully traversed.

The Goldner et al patent discloses an electrochemical cell, which, as stated at column 13, lines 47 *et seq*, may be encapsulated with an organic or inorganic packaging material in order to protect the cell from the degrading influence of atmospheric moisture and/or oxygen. Epoxy resins may be used for this purpose. However, not only is the specific protective epoxy composition of a combination of (a) an epoxy resin, (b) a latent catalyst consisting of a phenol compound and an organic metal compound, (c) a butyral resin, and (d) an inorganic filler not shown or suggested, but there is no teaching or suggestion of the objective of the present invention which is to prevent deterioration of an electronic device by electrolyte leakage from the battery of the device.. Accordingly, the Goldner et al patent does not teach or suggest the present invention.

The Clayton patent discloses an improved multichip semiconductor module that contains a plurality of semiconductor devices. The patent at the bottom of column 17 describes that protective overcoat of an epoxy resin , a thermal plastic encapsulant or the like. However, again, not only is there no teaching or suggestion of the four component epoxy resin composition of the present invention, but also the patent does not suggest the objective of the present invention which is to prevent deterioration of an electronic device by electrolyte leakage from the battery of the device.

The '2757 reference discloses a light-sensitive resin which is capable of protecting electronic circuitry from exposure to the air and penetration by moisture. The resin composition is comprised of a compound having two or more epoxy groups, an ethylenically unsaturated compound that has both hydroxyl groups and an ethylenically unsaturated bond and a compound which generates an acid upon UV light exposure. Again, there is no teaching or suggestion of the objective of the present invention of preventing electrolyte leakage from a battery, nor a teaching or suggestion of the four component epoxy resin composition of the present claims.

The Murai et al '090 patent discloses the use of a liquid epoxy resin composition for the sealing of a semiconductor element. Although there is some similarity of the resin composition with that of the present invention, nevertheless, there is no teaching or suggestion of the manner in which the epoxy resin composition of the present invention functions by preventing deterioration of an electronic device by electrolyte leakage from the battery of the device. Accordingly, Murai et al does not improve upon the deficiencies of the above-discussed references.

The '425 reference discloses an epoxy resin composition, which, when cured, is said to possess improved electrical characteristics. The resin composition is formulated from an epoxy compound that has one or more epoxy groups, a ketoesteratoaluminum compound and a phenolic compound as a curing catalyst. While the composition of the reference is similar to the four component epoxy resin composition of the present invention, it is not the same. Moreover, the reference fails to show or suggest protection of an electronic device by preventing deterioration of an electronic device by electrolyte leakage from the battery of the device. Accordingly, the '425 reference does not improve upon the deficiencies of the above-discussed primary references.

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Finally, the '919 reference discloses a resin composition which is a combination of a silanol blocked polyisocyanate, an epoxy compound and an organometallic compound. Thus, the composition of the resin composition of the reference is quite different from that of the present invention. Applicants believe that, in fact, the reference is of secondary interest and does not improve upon the deficiencies of the above-discussed primary references.

Withdrawal of the prior art rejection is respectfully requested.

It is now believed that the application is in proper condition for allowance. Early notice to this effect is earnestly solicited.

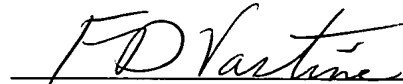
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